

20. An apparatus for facilitating servicing of a bearing from an upstream end of a vertical turbine pump incorporating a pump assembly including a casing, a diffuser core disposed in the casing, a drive shaft extending through the diffuser core, and a rotary impeller fastened to an upstream end of the drive shaft, the apparatus comprising:

a bearing cartridge including an elongated housing having the bearing disposed therein,

said bearing cartridge separably fastened to the diffuser core,
said bearing surrounding and rotatably supporting the drive shaft,
said bearing cartridge being removable from an upstream end of the
casing by removing the impeller and disengaging said bearing cartridge from
the diffuser core thereby permitting said bearing cartridge to be slid off the
drive shaft in an axial direction.

21. The apparatus as recited in claim 20, wherein an only active element removed to allow removal of said bearing cartridge is the impeller, and wherein the term "active element" refers to an element that is actively rotated or otherwise actively moved by the drive shaft when the vertical turbine pump is on.

REMARKS

Claims 1-16, 19-21, and 24-26 are pending in the present reissue application. Claims 17, 18, 22, and 23 have been cancelled.

Rejection Under the Recapture Rule

Claims 15-17, 19-22, and 24-25 stand rejected under the Recapture Rule. This rejection is respectfully traversed.

In maintaining the rejection of claims under the Recapture Rule, the Examiner concludes that the patentees effectively surrendered the scope of invention now recited in independent reissue claims 15, 20, and 26 during prosecution of Application Serial No. 08/321,857 (hereinafter "the '857 application") when they amended original application claim 1 to recite the incremental feature of original claim 4. Specifically, the Examiner now states that:

The reissue claims have tried to remove language which was explicitly added to overcome a prior art rejection and therefore the reissue claims have been broadened in a material aspect, i.e., an aspect that was material to the rejection that was overcome by adding the language now sought to be removed.

Addressing whether such a broadened aspect of the reissue claims is an attempt to recapture a previously surrendered scope of invention, the Examiner reasons that:

On balance, [the] reissue claims ... are broader in a manner directly pertinent to the subject matter that Applicants surrendered (what was added to then pending claim 1 to make it allowable and issue as patent claim 1) during prosecution of the patent.

As supported by the legal analysis below, patentees again submit that independent reissue claims 15, 20, and 26 do not attempt to recapture a scope of invention which was surrendered while prosecuting the '857 application. The amendments to originally filed claim 1, which incorporated the "bearing

cartridge" language from original application claim 4, at most surrendered a claim scope which does not require a bearing cartridge. The relevant authority on the Recapture Rule, including the Federal Circuit, its predecessor court (the CCPA), and the *Manual of Patent Examining Procedure* ("MPEP") recognizes that surrender of claim scope as a result of amendments relates, when applicable at all, to a surrender of the pre-amended or canceled claim scope, and not claim scope which is materially narrower than the pre-amended or canceled claim.

Although the Examiner's analysis alludes to proper recapture principles by looking to the prosecution history to identify surrendered subject matter, and using phrases such as "broadened in a material aspect" and "broader in a manner directly pertinent to the subject matter that Applicants surrendered," the Examiner's conclusion of recapture rests on a definition of surrendered claim scope which directly contradicts that adopted by the Courts and the MPEP. Specifically, the Examiner has concluded that an applicant who amends a rejected claim to include subject matter of an allowable dependent claims surrenders not only the pre-amended claim scope, but also a scope of invention which is materially narrower than the pre-amended claim scope. Not only has the Examiner failed to cite any authority for this notion of surrender, but fails to reconcile this position with the definition of surrendered claim scope traditionally used by the Courts and cited by the MPEP. Patentees submit that the following legal analysis clearly illustrates the Examiner's error in this regard.

1. The Applicable Law on Recapture

As recognized by the Examiner, the Federal Circuit has established a multi-step analysis for determining when the recapture rule precludes a patentee from seeking a reissue claim which is broader than a patent claim in a material aspect. For example, the Federal Circuit's recent decision in *In re Clement*, 45 USPQ2d 1161 (Fed. Cir. 1997) articulated the following three steps for determining when the Recapture Rule applies:

- (1) First, the patented claims must be compared with the reissue claims "to determine whether in what 'aspect' the reissue claims are broader than the patent claims," *Id.* at 1164;
- (2) Having recognized the broader aspects of the reissue claims, the next step is to determine whether such broader aspects "relate to surrendered subject matter." *Id.*;
- (3) If so, the third step is to "determine whether the surrendered subject matter has crept into the reissue claim." *Id.*

Concerning the second step of this analysis, i.e., determining whether broadened aspects of the reissue claim relate to surrendered subject matter, the scope of what the patentee surrendered, if anything, must be determined as a threshold matter by referring to the prosecution history "for arguments and changes to the claims made in an effort to overcome a prior art rejection." *Id.* Essentially, the focus of this inquiry is to determine whether the patentee previously admitted, either explicitly or implicitly, that the scope of invention now claimed in a reissue application is not patentable, and thus should now be

precluded from seeking such a claim scope. *See e.g., In re Clement*, 45 USPQ2d at 1164 (stating that “the recapture rule does not apply in the absence of evidence that the applicant’s amendment was ‘an admission that the scope of that claim was not in fact patentable’”) (quoting *Seattle Box Co., Inc. v. Industrial Crating & Packing, Inc.*, 221 USPQ 568, 574 (Fed. Cir. 1984)).

The Courts have consistently defined surrendered subject matter in terms of the pre-amended or canceled claims, or at least based on an argument by the applicant made to overcome a prior art rejection. *See e.g., Hester Indus., Inc. v. Stein, Inc.*, 142 F.3d. 1472, 1481 (Fed. Cir. 1998). For example, the Court in *In re Clement* stated that “[d]eliberately canceling or amending a claim in an effort to overcome a reference strongly suggests that the applicant admits that the scope of the claim before the cancellation or amendment is unpatentable.” 45 USPQ2d at 1164 (emphasis added). Similarly, the Court reasoned in *Ball Corp. v. United States* that “[t]he recapture rule bars the patentee from acquiring, through reissue, claims that are of the same or broader scope than those claims that were canceled from the original application.” 221 USPQ 289, 295 (Fed. Cir. 1994) (emphasis added). Importantly, the Court in *Ball* equated a pre-amended claim with a canceled claim for recapture purposes, and agreed with the lower court that the recapture rule did not apply to the case as issue because “the reissue claims were intermediate in scope – broader than the claims of the original patent yet narrower than the canceled claims.” *Id.* (emphasis added).

Before the Federal Circuit was established, its predecessor court (the CCPA) likewise defined surrendered subject matter in terms of canceled or pre-amended claim scope, for example stating in *In re Byers* that “[i]t is evident that since the deliberate cancellation of a claim in order to obtain a patent constitutes a bar to the obtaining of the same claim by reissue, it necessarily also constitutes a bar to the obtaining of a claim which differs from that canceled claim only in being broader.” 109 USPQ 53, 56 (CCPA 1956) (emphasis added). Finally, the *Manual of Patent Examining Procedure* (“MPEP”) states that “[i]mpermissible recapture occurs in a reissue where the claims in the reissue are of the same scope as, or are broader in scope than, claims deliberately canceled in an application to obtain a patent.” MPEP § 1412.02 (emphasis added).

2. Errors in the Examiner’s Recapture Analysis

As set forth on pages 2-4 of the Office Action, the Examiner recognizes the multi-step recapture analysis articulated by the Federal Circuit in *In re Clement*, and correctly notes that reissue claims 15, 20, and 26 are broader in at least some respects than patent claim 1, specifically noting a change in the “bearing cartridge” element. The Examiner’s subsequent analysis, however, relies on a definition of surrendered subject matter which is unsupported by authority, and is contrary with the definition of surrendered subject matter stated in the MPEP and consistently applied by the courts.

For the presently pending reissue claims, the “bearing cartridge” of patent claim 1 was originally set forth in application claim 4, which was

indicated as allowable in a first Office Action. Original claim 1 of the '857 application, which was rejected under prior art grounds in the first Office Action, did not recite any "bearing cartridge" whatsoever. Therefore, reissue claims 15, 20, and 26, which recite detailed features of a "bearing cartridge," are materially narrower in this respect than pre-amended claim 1. Thus, these claims do not attempt to recapture a scope of invention which the patentees previously admitted as being non-patentable, i.e., a vertical turbine pump which does not require a bearing cartridge, as set forth in pre-amended claim 1.

Although the Examiner relies heavily on the fact that the Examiner's Statement of Reasons for Allowability in the first Office Action cited "a separable bearing cartridge which carries spaced bearings," this statement by the Examiner certainly does not equate to a prior admission by the patentees that the scope of a "bearing cartridge" presently recited in reissue claims 15, 20, and 26 is not patentable. If this, in fact, is the Examiner's position, patentees respectfully request that the Examiner provide some supporting authority for the notion that surrendered claim scope is determined by an Examiner's Statement of Reasons for Allowability instead of pre-amended or canceled claim scope. Without such authority, the Examiner's line of argument must fail.

Claim Objections

Claim 20-22 and 24 are objected to under 37 C.F.R. § 1.121(b) because claim 20, line 9 improperly contains bracketing which should not be utilized in new reissue claims. This objection is respectfully traversed.

Applicants have utilized the correct amendment format in claim 20 thereby rendering this objection moot. Therefore, Applicants respectfully request reconsideration and withdrawal of this claim objection.

Consent of Assignee

The application is objected to under 37 C.F.R. § 1.172(a) as lacking the written consent of the assignee. The re-issue Declaration submitted herewith includes the required assignee consent. Therefore, this objection is traversed and applicant respectfully request reconsideration and withdrawal thereof.

35 U.S.C. § 112, Second Paragraph Rejection

Claims 15-17, 19-22, and 24-25 are rejected under 35 U.S.C. § 112, second paragraph. This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

In regards to claims 15 and 20, the bearing cartridge is now stated as being separably fastened to the diffuser core and not the casing. Also, the typographical error in claim 20, lines 7-8 has been corrected.

The Office Action also objects to “active element” as being a double recitation. Applicants fail to understand the Examiner’s rationale in this regard. Applicants are merely attempting to better define what the term “active

element" means within the claims. To help alleviate this rejection, Applicants have submitted appropriate amendments. If this rejection is repeated, Applicants respectfully request a suggestion as to how this alleged indefiniteness problem can be alleviated.

In view of the above amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. § 112, second paragraph rejection.

35 U.S.C. § 103 Springer-U.K. 257,111 Rejection

Claims 1-4, 6-7, 15-17, 20-22, and 25 are rejected under 35 U.S.C. § 103 as being unpatentable U.K. 257,111 in view of Springer. This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

The U.K. patent is the primary reference relied upon in the Office Action. Indeed, the U.K. patent teaches many common elements of conventional vertical turbine pumps. As admitted in the Office Action, however, the U.K. patent does not disclose (1) a bearing cartridge, (2) a bearing cartridge separately fastened within the diffuser core, (3) a bearing cartridge in the form of a tubular housing, (4) a bearing cartridge in the form of an elongated housing separately fastened within the diffuser core having a bearing located therein.

Springer is relied upon to teach a bearing cartridge including features (1) - (4). As argued below in great detail, Springer does not teach or suggest any element that can properly be considered a bearing cartridge having any of the

features (1) - (4), particularly as recited in each of the independent claims 1, 6, 15, or 20.

A closer examination of Springer will reveal that there is no bearing cartridge disclosed by Springer. Instead, a hollow tubular support member 300 is disclosed for Springer's radial centrifugal pump. Such radial centrifugal pumps, particularly as disclosed by Springer do not immerse the pump structure within the fluid to be pumped. This is clearly shown in Figures 1 and 2 wherein only an intake pipe 54 is immersed in the water. The working parts of the pump are kept entirely out of the water. Significantly, the bearings 299 are not exposed to water and are not likely to fail due to immersion in water or another fluid. This is in sharp contrast to the present invention which is a vertical turbine pump in which the lower bowl bearings are immersed in water or the fluid to be pumped. Such immersion of the bowl bearings (bearing 54 and Figure 3) in the fluid to be pumped causes a premature demise for the bowl bearing.

Springer's bearings 299 do not suffer from premature failure caused by immersion in the pumped fluid. Thus, the bearings 299 of Springer do not need to be changed in a frequent basis like the bowl bearings of a vertical turbine pump. Therefore, one of ordinary skill in the art would not be motivated to apply Springer's hollow tubular support member 300 to a vertical turbine pump as claimed in order to facilitate field servicing of the bowl bearings.

Furthermore, the hollow tubular support member 300 disclosed by Springer is not described as a removable bearing cartridge. Instead, column 6, lines 69-75 describe the hollow tubular support member 300 as aiding in the alignment between the impeller pump shaft 296 and the impeller 252. Specifically, the inner end of the hollow tubular support member 300 is inclined at 306 and engages an inclined bottom or seat 308 formed by the inner end of the bore 302. These inclined portions centralize the hollow tubular support member 300 in relation to the bore 308 so that the impeller pump shaft 296 will be correctly oriented with respect to the impeller 252. Thus, the hollow tubular support member 300 is clearly for orientating the impeller pump shaft 296 relative to the impeller 252 and not for providing a removable bearing cartridge for facilitating servicing of the bearings 299. Because Springer clearly discloses the hollow tubular support member 300 as performing this alignment function, one of ordinary skill in the art would not be motivated to utilize this hollow tubular support member within a vertical turbine pump to construct a removable bearing cartridge for facilitating servicing of the bowl bearings.

Indeed, the Office Action offers no permissible motivation for combining U.K. 257,111 with Springer. The only statement relating to the motivation to combine U.K. 257,111 with Springer is that it would allow easy removal of the bearings as a whole unit. This motivation is clearly taken from the present specification. Indeed, Springer never states or elaborates upon the removability of the bearings 299 or the facilitation of removing or installing the

bearings 299 within Springer's radial centrifugal pump. The only source of this motivation is the present specification. This lifting of the motivation from the present specification amounts to hindsight reconstruction. The Examiner is respectfully reminded that hindsight reconstruction is impermissible. For authority, the Examiner's attention is directed to Grain Processing Corp. v. American Maize Products Co, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988) which states:

Care must be taken to avoid hindsight reconstruction by using "the patent in suite as a guide through the maze of prior art references, combining the right reference in the right way so as to achieve the results of the claims in suit.

Furthermore, the structural arrangement of the vertical turbine pump of U.K. 257,111 and Springer's radial centrifugal pump render the combination thereof non-obvious to one of ordinary skill in the art. Specifically, the Springer hollow tubular support member 300 is not removable from an upstream direction of the pump casing. As shown in Figure 11 of Springer, the flow proceeds from intake pipe 266 (the upstream direction) past impeller 252 and through discharge pipe 232. Although the hollow tubular support member 300 may be removed from Springer's pump, this removal is clearly from a downstream direction and not an upstream direction as recited in independent claims 1, 6, 15, and 20.

Furthermore, Springer's hollow tubular support member 300 is attached by flange 304 and bolts 306 to the pump casing 248 which is an entirely different mounting structure than the claimed bearing cartridge which is separably fastened to the diffuser core. The diffuser core is an internal element

of a vertical turbine pump which is quite distinct from the external mount structure of Springer's hollow tubular support member 300 mounted via an external flange 304 to the outer portion of the Springer pump casing 248. Thus, one of ordinary skill in the art would not be motivated to apply such an externally mounted hollow tubular support member to an internal diffuser core of an entirely different pump (vertical turbine pump) than the radial centrifugal pump disclosed by Springer.

The removability of the claimed bearing cartridge from an upstream direction is an extremely important feature of the invention. Removing the claimed bearing cartridge from an upstream direction permits the claimed vertical turbine pump to be serviced in the field. Such a field-servicable pump is highly advantageous because the entire pump does not have to be torn down to access the bowl bearings. Instead, by applying the techniques of the invention, the removable bearing cartridge can be removed from an upstream direction which merely requires removing the suction bell 22, and impeller 38 thereby permitting the bearing cartridge to be slid off the drive shaft in an axial direction. Thus, a single person can easily service the bottom or bowl bearings with minimum delay and tools. Such advantages are certainly not achieved, taught, or suggested by Springer or U.K. even when combined as alleged by the Office Action.

In summary, there are clearer structural and functional differences between the combination advanced by the Office Action and each of the independent claims. Furthermore, there is no motivation sufficient to combine

U.K. 257,111 with Springer. Any motivation advanced by the Office Action is clearly taken from the Specification itself which is tantamount to impermissible hindsight reconstruction.

For all of the above reasons, taken alone or in combination, Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. § 103 U.K. 257,111-Springer rejection.

35 U.S.C. § 103 U.K. 257,111-Springer-Clause-Fukute Rejection

Claims 5 and 8-9 are rejected under 35 U.S.C. § 103 as being unpatentable over U.K. 257,111, Springer, and further in view of either Clause or Fukute. This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

All of the above arguments against the base combination of Springer and U.K. 257,111 are hereby incorporated by reference. Applicants respectfully submit that these arguments are sufficient to remove the base combination as a valid combination against the independent claims. Furthermore, neither Clause nor Fukute remedies any of the noted deficiencies in the base combination. Indeed, Clause and Fukute are merely applied to teach a threaded connection between a tubular housing and the diffuser core. Therefore, the full combination of these patents fails to disclose or suggest the features of independent claims 1 or 6 and, therefore, dependent claims 5 and 8-9 which depend therefrom.

Allowable Subject Matter

Applicants appreciate the indication that claims 10-13 and 26 contain allowable subject matter. For the reasons discussed above in detail, Applicants believe that all of the pending claims define over the applied art. Therefore, Applicants respectfully request a Notice of Allowance indicating allowability for all of the pending claims.

CONCLUSION

Should the Examiner have any questions concerning this application, the Examiner is invited to contact Michael R. Cammarata, Reg. No. 39,491 at (703) 205-8058 in the Washington, D.C. area.

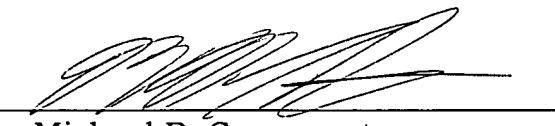
Pursuant to the provisions of 37 C.F.R. § 1.17 and § 1.136(a), Applicant hereby petitions for an extension of three (3) months from October 7, 1999 to January 7, 2000 in which to file a response to the outstanding Office Action. The required fee of \$870.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and further replies, to charge payment or credit any overpayment to Deposit

Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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